

Some General Rules of Thumb for Managing Stressed Feeder Calves

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SOME GENERAL RULES OF THUMB FOR MANAGING STRESSED FEEDER CALVES¹

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Research conducted at many locations over the past 30 years has made it obvious that there is no one "best way" to manage feeder calves. Very often, what seems to work very effectively with one load of calves, does not work on the next load. The following is a list of general rules of thumb for managing stressed feeder calves as well as other information that may be helpful in calculating cost estimates, etc. They are compiled from approximately 150 research studies conducted in 12 states. These are not a "cure all," and many are estimates. Good management, and attention to the needs of each lot of calves, are still the best tools to reduce losses caused by shipping fever.

PRESHIPMENT MANAGEMENT FACTORS:

1. Castrating and/or dehorning calves 30 days before sale will result in a net loss in weaning weight of about 3%. For each month earlier, this can be reduced about 0.5% (for example, castrating 3 months before sale will result in about a 2% decrease in weaning weight).
2. The adverse effects of castrating and dehorning do not appear to be additive if done at the same time.
3. Vaccinating calves 30 days before sale will result in about a 2% loss in weaning weight. Earlier vaccination may reduce this loss but may also reduce immunity developed due to interference by maternal antibody.
4. Preweaning: On average, at sale time, calves weaned 30 days earlier and fed a 50% concentrate diet ad libitum for 30 days will weigh about 2% more than calves left on the cow. Actual weight gains will range from about 30 to 60 lbs. Calves left on the cow will gain about 10 to 60 lbs during the same 30 day period. Preweaned calves will consume an average of 200 to 500 lbs of feed during a 30-day preweaning period. Best results with preweaning appear to occur when calves are fed to gain about 2 lb/day for 45 to 60 days. Best results also appear to occur in large-framed calves, rather than small-framed cattle.

¹ The mention of trade or manufacturer names is made for information only and does not imply an endorsement, recommendation, or exclusion by USDA-Agricultural Research Service. Mention of a pesticide does not constitute a recommendation for use nor does it imply registration under FIFRA as amended.

5. *Limited-creep feeding calves (1 to 3 lb/head daily) for 60 days will increase weaning weights 2 to 5%. Ad libitum creep feeding will produce a slightly greater weight gain (0.25 to 0.5 lb/day of additional gain), but feed intake will be greater (5 to 10 lbs/head daily). Best results with ad libitum creep feed appear to occur in large-growth calves with poorer results in small-framed cattle. For best results with ad libitum creep feeding, the calves should be fed for at least 60 days. Shorter creep feeding periods have little or no effect on preweaning performance.*
6. *Shrink: About 50% of shrink is gut contents and about 50% is from the tissues (primarily water) even in short-haul cattle. A 24-hour haul is equivalent to a 48 to 72-hour period without feed and water.*
7. *Shrink: Calves can shrink too much but they can also shrink too little. Shrink/health/performance considerations should be based on the deviation from a "typical" shrink. For example, calves hauled 24 hours normally shrink 6 to 9%; calves hauled for 24 hours with shrinks of less than 6% or greater than 9% may have more health problems.*
8. *Feeding a 50% concentrate, antibiotic-fortified diet along with good quality hay at the order-buyer facility prior to transport can reduce sickness and death loss at the feedyard by 10 to 20 percent. The diet should be highly palatable. In some areas of the country, pelleted formulations of ingredients containing highly digestible fiber sources may be economically feasible. Clean water should always be available.*
9. *The major stressors involved with transport of feeder calves appear to be loading and unloading. Extra care should be taken to conduct these operations as quietly and gently as possible.*

FEEDYARD ARRIVAL:

1. *Compared to polled steers, calves that must be castrated/ dehorned/tipped upon arrival at the feedyard will generally have:*
 - a) *30% greater sickness and death loss,*
 - b) *3% poorer average daily gains,*
 - c) *3% poorer feed conversions, and*
 - d) *lower quality grades at slaughter.*
2. *Compared to fresh-unweaned calves, calves that were preweaned and fed ad libitum for 30 days at the farm will have:*
 - a) *20% less sickness and death loss,*
 - b) *similar average daily gains, and*
 - c) *0 to 7% poorer feed conversions.*
3. *Compared to fresh-unweaned calves, calves that were limit-creep fed (1 to 3 lb/head daily) for the last 60 days at the farm/ranch will have:*

- a) 20% less sickness,
- b) 25% less death loss, and
- c) 0 to 3% better feed conversions.

4. Compared to non-vaccinated calves, calves that were vaccinated for the BRD complex (IBR, PI-3, BVD, RSV, Pasteurella) at the farm will have:
 - a) 20 to 30% less sickness,
 - b) 40% less death loss, and
 - c) similar or improved feedyard performance.
 5. During the stress of hauling, etc., subclinical infections such as Salmonella or coccidiosis may become clinical.
 6. Rectal temperatures taken directly off the truck can be misleading. Temperatures taken 12 to 24 hours after unloading can be beneficial in determining potential management changes, etc. that may be required for high risk cattle. Factors such as sunlight, ambient temperature, cattle temperament, and excitement must be considered in evaluating rectal temperatures.
 7. On sunny days, rectal temperatures tend to increase about 0.5°F for each hour calves wait for processing, etc. On cold rainy days, rectal temperatures tend to decrease about 0.5°F for each hour that calves wait for processing. Calves with temperatures greater than 105°F (taken in the early morning before the sun begins to heat them up) are at a very high risk.
 8. If calves are heavily stressed, it is often beneficial to allow them to rest for 12 to 24 hours before processing. Portions of processing may be delayed in heavily stressed calves. However, antibiotic treatment of sick calves should not be delayed.
 9. Be careful with calves that have been treated for an extended period or were pulled late and are returned to their home pen after cattle in that pen have been moved up to an intermediate or top ration. These calves may be coming back on feed and be prone to develop acidosis and/or severe liver abscesses which will hurt subsequent performance.
- If sufficient numbers of calves fall into this category, consider an extra convalescent pen in which calves can be moved to the top ration before going home.
10. Calves from fescue pastures (as evidenced by coming from Missouri, Arkansas, or the northern southeast and having muddy rough long hair coats) are prone to heat stress for the first 2 to 3 weeks after arrival but can have excellent performance if the heat stress is controlled.
 11. Calves either overfilled (tanked) or with a gaunt appearance generally have poorer performance and more health problems than "typical" calves.

12. When selecting vaccines, injectable vitamins, feed ingredients, etc., use high-quality products that are from reputable vendors/companies, and that are backed by sound research. Due to differences in the bioavailability of active ingredients, composition of carriers, types of adjuvants, etc., products that "seem-to-be-the-same" can vary greatly in their quality and cost effectiveness.
13. Always follow the Quality Assurance Guidelines developed by the National Cattlemen's Beef Association and/or your state Cattlemen's Association.

RECEIVING RATIONS:

1. Receiving rations can vary from high roughage to fairly high concentrate levels. In general, the lower the roughage level, the higher the sickness rate, but the better the performance. We currently suggest that 400 lb (or lighter) calves receive a 65 to 70% concentrate (45-51 mcal NEg/cwt) diet, 500 lb calves/yearlings receive a 55 to 60% concentrate (40 to 45 mcal NEg/cwt) diet, and 600+ lb yearlings receive a 50 to 55% concentrate (36 to 41 mcal NEg/cwt) receiving diet. Good quality hay should be provided free-choice for at least the first 3 days after arrival. If a high percentage of calves develop respiratory problems soon after arrival, consider providing hay for more than 3 days.
2. In operations with limited capacity to mix complete diets and(or) limited access to commercial complete rations that are economical, the feeding of free-choice, good quality hay with 2 lb/head daily of a pelleted 30 to 40% protein supplement has been used with some success. Calves fed using this method will have poorer performance than calves fed nutritionally balanced 50 to 70% concentrate diets.
3. Limit the use of high moisture feeds such as silage during the first 1 to 2 weeks after arrival.
4. Limit the intake of urea to less than 1 ounce (28 grams) per head daily during the first 1 to 2 weeks after arrival.
5. Because stressed cattle tend to eat less than normal cattle, the concentrations of many nutrients in the diet will need to be increased from "normal" levels. The following are suggested nutrient concentrations in receiving rations (dry matter basis):

Dry matter	82 to 92%
Concentrate	50 to 70%
NEm	60 to 85 mcal/cwt
NEg	36 to 51 mcal/cwt
Crude protein	13 to 16%
Non-protein-nitrogen	0 to 1.5%

Potassium	1 to 1.3%	
Calcium	0.5 to 0.7%	
Phosphorus	0.4 to 0.5%	
Sodium	0.2 to 0.3%	
Magnesium	0.2 to 0.3%	
Sulfur	0.15 to 0.25%	
Manganese	40 to 70 ppm	
Copper	12 to 15 ppm	
Iron	100 to 150 ppm	
Zinc	100 to 150 ppm	
Selenium	0.1 to 0.2 ppm	
Cobalt	0.1 to 0.2 ppm	
Vitamin A	1000 to 2000 IU/lb	Higher if
Vitamin E	20 to 50 IU/lb	pelleted

6. Other nutrients and/or feed additives that may be considered for receiving diets include the following (those with * are recommended in the receiving ration and those with + are recommended in hospital diets):

- a) Niacin at 100 to 200 ppm
- b) Thiamine at 100 to 1000 milligrams/head daily
- c) Other B-vitamins
- d) A Coccidiostat *+
- e) An Antibiotic
- f) An Ionophore *
- g) Lactobacillus culture +
- h) Yeast culture +
- i) Proteinated/chelated trace minerals

7. Adding fat (animal/vegetable blends) up to 4% of the receiving diet may be beneficial, however, fat should not be included in hospital pen rations. Results may vary depending upon the source and quality of the fat.

8. Subjective examination of feces can give an indication of how cattle are coming on feed and warn of possible digestive disturbances.

9. The pH and lactic acid concentration of ruminal contents of animals fed dead may not be valid indicators of acidosis. After death, the pH of the ruminal contents will normally decrease for 6 to 12 hours. Lactic acid concentrations may increase from low levels or decrease from high levels.

Have a plan. But don't be afraid to change that plan to fit a specific load of cattle.